

**SAND MINING SCIENCE ADVISORY PANEL PARTICIPANTS
JANUARY 23, 2014**

Patrick Barnard Ph.D - USGS Coastal Geologist

Dr. Patrick Barnard has been a coastal geologist with the USGS Pacific Coastal and Marine Science Center in Santa Cruz since 2003. His research focuses on the dynamics and evolution of the high-energy beaches and estuaries of California, with an emphasis on storm- and climate-change related impacts. His research has been published in ~70 peer-reviewed scientific papers and presented over 100 times at scientific conferences and universities. He is a member of the Bay Area Ecosystem Climate Change Consortium (BAECCC) and the West Coast Governor's Agreement (WCGA) Climate Action Team, serves on the Editorial Board for the Journal of Coastal Research and was appointed to the Oversight Committee for the National Research Council study on sea-level rise for the U.S. West Coast. He received a BA from Williams College, MS from University of South Florida, and PhD from UC Riverside.

Aaron Carlisle, Ph.D – Marine Biologist, Postdoctoral Research Fellow, Hopkins Marine Station

Dr. Carlisle is a postdoctoral researcher at Hopkins Marine Station of Stanford University studying fish ecology. His research is on the ecology and conservation of marine and estuarine fishes and is focused on how biotic and abiotic factors influence the habitat use, distribution, and nursery use of fishes. He serves as a member the IUCN shark specialist group and is a member of the science panel of the Elkhorn Slough Tidal Wetland Project. Dr. Carlisle received his Ph.D. from Stanford University and holds B.A. in Ecology and Evolutionary Biology from Princeton University and an M.S. from Moss Landing Marine Laboratories.

Scott Fenical, PE – Coastal Engineer, Principal, Coast & Harbor Engineering, Inc.

Mr. Fenical (B.S. UC Santa Barbara, M.S. Texas A&M University) is a principal coastal engineer with 17 years of experience in coastal processes analysis, numerical modeling and design of shoreline restorations, aquatic habitat and coastal engineering structures. Mr. Fenical was director of coastal engineering analysis and numerical modeling for the Sand Mining Environmental Impact Report for California State Lands Commission, coastal environmental impact analysis for the 34th America's Cup, coastal studies and ship maneuvering and berthing for the Pier 27 Cruise Terminal, coastal engineering analysis and design for the San Francisco Marina Renovation, and numerous other projects evaluating hydrodynamics and sediment transport in San Francisco Bay.

Jay Johnson - Senior Oceanographer, Managing Principal, Applied Marine Sciences, Inc.

Mr. Johnson has over 35 years professional experience in applied marine and aquatic sciences, environmental consulting and program management. He has dealt extensively with complex scientific, regulatory, and environmental issues, effectively interacting with local, state, national and international agencies, developing and implementing cost effective due diligence, baseline and impact monitoring programs and assessing and alleviating environmental impacts. Mr. Johnson provides the State of California with Independent Third-party Environmental Mitigation Monitoring support for marine terminal operations, marine facilities

decommissioning projects and for coastal fiber optic cable landings. He has been the Project Manager and Principal Scientist for multiple projects assessing the environmental effects of Pacific OCS oil and gas operations on the marine environment for the Bureau of Ocean Energy Management, a marine monitoring program for the Department of the Interior to assess long-term changes to seafloor ecology resulting from coastal sand mining, preparation of CEQA/NEPA EA's and MND's for coastal marine protected areas, coastal aquaculture, SF Delta marinas, commercial sand mining in San Francisco Bay and Delta, the America's Cup races in San Francisco Bay, and assorted marine terminal operations, and coastal and San Francisco Bay desalination projects. He has also assessed the seafloor habitat and associated marine biological communities along fiber optic cable routes along California's coast.

Jessie Lacy, Ph.D – Physical Oceanographer, USGS - Moderator

Dr. Lacy is a physical oceanographer with the US Geological Survey Pacific Coastal and Marine Science Center. She conducts research in hydrodynamics and sediment transport in estuaries and coastal waters, including San Francisco Bay, Puget Sound and Monterey Bay. Dr. Lacy's research interests include sediment dynamics in estuarine shallows; the interactions of bedforms, waves and currents, and sediment transport; interaction between aquatic vegetation and hydrodynamics; and understanding the role of the physical environment in defining habitat function in aquatic systems. She has served on science panels for the conservation and restoration of Elkhorn Slough, Pescadero Lagoon and the South San Francisco Bay Salt Ponds. Dr. Lacy received her Ph.D in Civil and Environmental Engineering from Stanford University.

James Lindholm Ph.D. - Marine Ecologist, California State University Monterey Bay

Dr. Lindholm (B.A. Cal Poly, SLO; M.A., Ph.D Boston University) is the James W. Rote Distinguished Professor of Marine Science and Policy, and the Director of the Institute for Applied Marine Ecology (IfAME). He has conducted research around the world, including the Pacific, Atlantic, and Indian Oceans, as well as the Mediterranean and Caribbean Seas. Broadly, his research interests include the landscape ecology of fishes, the design and efficacy of marine protected areas, and the ecological effects of fishing activity. On this last topic he has conducted multiple projects on the recovery of seafloor habitats and associated taxa following the cessation of fishing with mobile, bottom contact fishing gear (e.g., bottom trawls and scallop dredges) and compared those chronic impacts to acute impacts from the burial of fiber optic cables in the seafloor. These projects were conducted in habitats ranging from high relief piled boulder reefs to low-relief unconsolidated sediments, and from low-energy depositional environments to high-energy erosional environments.

Francis Parchaso – Marine Biologist, USGS

Mr. Parchaso has been with the USGS since 1989 and has devoted his career to working in the San Francisco Bay, studying the Benthic Ecology of the San Francisco Bay and Delta. In doing so, Mr. Parchaso has been part of the *Mechanisms of Biological and Ecological Response in Disturbed Aquatic Ecosystems* project, focusing his research on the function of the benthic community as both consumers and prey in the food web and as contaminant vectors in estuarine and tidal freshwater ecosystems. He has also conducted research on bivalve reproduction, physiology and benthic/pelagic relationships. Mr. Parchaso received his M.S. in

Marine Biology from San Francisco State University and has worked on numerous USGS research vessels in the San Francisco Bay, Delta and Pacific Ocean as Captain, operator and chief scientist.

Mark Stacey Ph.D - Professor, Civil and Environmental Engineering, UC Berkeley

Dr. Stacey teaches and pursues research in the general area of Environmental Fluid Mechanics. His research interests revolve around the sustainable management of coastal resources, with a focus on the physical processes that govern fluid motions and the interdisciplinary implications of transport and mixing in estuarine and coastal environments. Specific examples include estuarine sediment transport and the implications for marsh restoration, the dispersion of rafts of vegetation in tidal flows, the dynamics of coastal lagoons, plume dynamics and odorant detection, transport and mixing in thin layers of biological productivity in the coastal ocean, and the delivery of nutrients and sediments to the near coastal ocean from local watersheds.

Jan Thompson, Ph.D - Research Biologist, Aquatic Ecologist, USGS

Dr. Thompson's research has focused on the function of the benthic community as both consumers and prey in the food web and as contaminant vectors in estuarine and tidal freshwater ecosystems. Specifically how and when the structure and function of the benthic community reflects changes in the overlying quality water; controls the productivity, food web complexity, and ultimately the health of aquatic ecosystems, and how invasive non-indigenous species affect community and ecosystem dynamics. For over 30 years her benthic studies have mostly taken place in the San Francisco Estuary and tidal freshwater Delta as well as on the coastal shelf in Northern California and in Washington and Oregon estuaries. Dr. Thompson is also the project chief for the *Mechanisms of Biological and Ecological Response in Disturbed Aquatic Ecosystems* project.

Paul Work Ph.D., P.E., D.CE – USGS California Water Science Center

Dr. Work serves as the Program Chief for Estuarine Hydrodynamics and Sediment Transport at the USGS California Water Science Center in Sacramento, California. In this role he oversees and conducts research on flows of water and sediment in San Francisco and adjoining bays and the Sacramento-San Joaquin River Delta system. This work is funded by a variety of sponsors, involves a significant amount of real-time field measurements, and is motivated by a desire to maintain and improve the environmental health of the bay-estuary system and its inhabitants. Dr. Work joined USGS in 2013 after 20 years as a faculty member in civil and environmental engineering programs at Georgia Tech and Clemson University. He received B.S. and M.S. degrees in civil engineering from the University of California – Berkeley and a Ph.D. in Coastal and Oceanographic Engineering from the University of Florida. He is a Professional Engineer and has served as a consultant on domestic and international port and harbor problems and development projects. He is currently serving as Secretary for the American Society of Civil Engineers' Coasts, Oceans, Ports and Rivers Institute (COPRI).